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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Lichtinger, et al.		
Serial Number:	09/507,868	Group Art Unit:	2855
Filed:	February 22, 2000	Examiner:	McCall, Eric S.
Title:	METHOD AND APPARATUS FOR SENSING SEAT OCCUPANT WEIGHT		

Box AF
Assistant Commissioner of Patents
Washington, D.C. 20231

APPEAL BRIEF

Dear Sir:

Subsequent to the filing of the Notice of Appeal on December 6, 2002, Appellant hereby submits its brief. Enclosed is a check in the amount of $320.00 for the appeal brief fee. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

Real Party in Interest

The real party in interest is Siemens Automotive Corporation the assignee of the entire right and interest in this Application.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1-7, 19-21, and 24-38 remain in the application. Claims 8-18, 22, and 23 have been cancelled. Claims 1-7, 19, 20, 24-29, and 31-37 stand rejected under 35 U.S.C. 102(e). Claims 21, 30, and 38 stand rejected under 35 U.S.C. 103(a).

Status of the Amendments

All amendments have been entered.

Summary of the Invention

A vehicle includes a vehicle seat assembly, shown generally at 12 in Figure 1, and an airbag system 14. The seat assembly 12 can be either a driver or passenger seat and includes a seat back 16 and a seat bottom 18. When a vehicle occupant 20 is seated on the seat 12 a vertical force Fv is exerted against the seat bottom 18. The vertical force Fv represents the weight of the seat occupant 20. Page 5, lines 13-17.

The airbag system 14 deploys an airbag 24 under certain collision conditions. The deployment force for the airbag 24, shown in dashed lines in Figure 1, varies according to the weight of the occupant 20. The vehicle includes a unique system for measuring the weight of the seat occupant 20. This unique system is installed within a seat track assembly, generally indicated at 26 in Figure 2. Page 5, lines 18-22.

The seat track assembly 26 includes a first track member 28 mounted to a vehicle structure 30 such as a floor, frame, or riser, for example. A second track member 32 is supported for movement relative to the first track member 28 along a longitudinal axis 34. First 38 and second sensors 40 are mounted on one of the track members 28, 32. The sensors 38 and 40 are used to generate a signal representative of the occupant weight. The first sensor 38 is preferably positioned rearwardly and the

second sensor 40 positioned forwardly on the track assembly 26. The first 38 and second 40 sensors are used to measure deflection of the track assembly 26 to generate the signal. Page 6, lines 1-9.

The first track member 28 includes a forward end 42 and a rearward end 44 with a central track portion 46 extending between the ends 42, 44. The forward 42 and rearward 44 ends are mounted to the vehicle structure 30 such that the central track portion 46 remains unsupported to form gap 48 between the vehicle structure 30 and the central track portion 46. Preferably, the first track member 28 is mounted to a riser 50 having upwardly extending supports 52 at each end for attachment to the forward 42 and rearward 44 ends of the first track member 28. Page 6, lines 10-16.

Thus, the central track portion 46 of the seat track assembly 26 is deflectable under load. When the occupant is seated on the seat 12, a vertical force Fv is exerted against the track assembly 26, as shown in Figure 3. Reaction forces Fr are exerted in the opposite direction. The forces cause the central track portion 46 to deflect and reflect full bending beam behavior, shown generally at 54 in Figure 3A. The sensors are preferably strain gages 38, 40 that are positioned along the central track portion 46, however, other types of sensors known in the art could also be used. Page 6, line 17 through page 7, line 1.

The sensors 38, 40 are preferably positioned in the first track member 28 such that the sensors 38, 40 remain positioned in the unsupported track section as the second track member 32 adjusts horizontally along axis 34. As shown in Figure 4, a plurality of ball bearings 56 are installed between the track members 28, 32 such that the second track member 32 can slide easily relative to the first track member 28. The bearings 56 also transfer the forces applied to the second track member 32 to the rigid track portion 46 between the two (2) sensor locations. Page 7, lines 3-9.

As shown in Figure 5, the seat 12 is mounted to the vehicle structure 30 on an inboard track assembly 26a and an outboard track assembly 26b that is spaced apart from the inboard track assembly 26a by a predetermined distance. The inboard 26a and outboard 26b track assemblies are

mounted to have similar bending behavior, i.e. both track assemblies 26a, 26b are deflectable in a vertical direction due to an occupant weight force. Both the inboard 26a and outboard 26b track assemblies include first 28 and second 32 track members. Page 7, lines 10-16.

In one embodiment, first 28 and second 32 sensors are installed in the inboard track assembly 26a and third 58 and fourth 60 sensors are installed in the outboard track assembly 26b. The first 38 and second 40 sensors generate a first signal 62 representative of the portion of occupant weight on the inboard track assembly 26a and the third 58 and fourth 60 sensors generate a second signal 64 representative of the portion of occupant weight on the outboard track assembly 26b. The signals 62, 64 are transmitted to an electronic control unit (ECU) 66, which combines the signals to determine the weight of the occupant 20. The ECU then sends a control signal 68 to a system controller 70. Preferably, the system controller 70 is an airbag control module that is in communication with the ECU 66 such that the deployment force of the airbag 24 is controlled based on seat occupant weight. The system controller 70 could also be used to control the force of seat belt pretensioners based on occupant weight. Page 7, line 17 through page 8, line 7.

As shown in greater detail in Figures 6, the track assembly 26 has a predetermined cross-sectional area defined by height H1. A portion, generally indicated at 72, of each track assembly 26 has a cross-sectional area defined by H2 that is less than the predetermined cross-sectional area H1. Each track assembly 26a, 26b has two (2) track portions 72 with this decreased cross-sectional area. One sensor assembly 38, 40, 58, 60 is mounted in each track portion 72. Only the first sensor assembly 38 is shown in Figure 6. As the track assembly 26 deflects under load, the sensor assembly 38 measures full bending beam behavior 54, shown in Figure 7. Each of the sensors 38, 40, 58, 60 at the four (4) locations thus serves as a Wheatstone Bridge for measuring deflection. Page 8, line 14 through page 9, line 1.

Preferably, the reduced cross-sectional area track portions 72 are created by forming square shaped holes within the first track member 28. The holes create dual-beam spring elements. With such elements located on the inboard 26a and outboard 26b track assemblies, it is possible to measure the vertical force Fv applied on the area between the two sets of tracks 26a, 26b. Page 9, lines 3-7.

As discussed above, the first sensor assembly is preferably comprised of first 38 and second 40 sensors that are mounted in the first track member 28 of the inboard track assembly 26a. The second sensor assembly is preferably comprised of third 58 and fourth 60 sensors that are mounted in the first track member 28 of the outboard track assembly 26b. It is preferable to integrate the sensors 38, 40, 58, 60 into the seat track assembly 26 because it is a common component for most vehicle seats 12. The subject weight measurement system is easily incorporated into any type of seat track configuration. The weight sensors 38, 40, 58, 60 are mounted within reduced size track segments 72 to measure deflection of the track material caused by the weight of the occupant 72. The measured weight is independent of seat positions and is accurately provided in various occupant positions on the seat 12. Page 10, line 10 through page 11, line 1.

By measuring the deflection in all four (4) locations in the inboard 26a and outboard 26b track assemblies, it is possible to calculate the occupant weight, which is proportional to the sum of the output of all of the sensors 38, 40, 58, 60. The center of gravity of the upper part of the seat and the occupant can be calculated by subtracting the sum of the sensor signals in the front from the sum of the sensor signals in the rear and dividing the result by the sum of all four (4) signals. The electronics for signal conditioning can be housed within the track assemblies 26a, 26b as is well known in the art. Page 11, lines 2-9.

Under high overload conditions, the track assembly 26 experiences high vertical Fv and horizontal Fh forces. These forces cause the track to experience an overload resultant force Fre that

will try to separate the track 26 from the floor 30. In applications, with heavy overload conditions, like seats having integrated or all-belts-to seat configurations, it is beneficial to integrate an active overload protection. One such method of protection utilizes an overload bolt 74, shown in Figure 8, extending through the track members 28, 30 to the vehicle floor 30. Under high vehicle impact forces, the bolt 74 prevents the track assembly 26 from separating from the floor 30. Thus, the reduced cross-sectional areas 72 do not have to sustain the full impact forces. Page 11, lines 10-18.

Issues

Is the final rejection of claims 1-7, 19, 20, 24-29, and 31-37 under 35 U.S.C. 102(e) proper over the reference of U.S. Patent No. 5,942,695 to Verma et al.?

Is the final rejection of claims 21, 30, and 38 under 35 U.S.C. 103(a) proper over the combination of U.S. Patent No. 5,942,695 to Verma et al. alone?

Grouping of Claims

A. The rejection of claims 1-4 and 24 is contested.

B. The rejection of claim 5 is separately contested, i.e. claim 5 does not stand or fall with claim 4.

C. The rejection of claims 6-7 is separately contested, i.e. claims 6-7 do not stand or fall with claim 5.

D. The rejection of claims 19-20 is separately contested, i.e. claims 19-20 do not stand or fall with claim 1.

E. The rejection of claims 21 and 30 is separately contested, i.e. claims 21 and 30 do not stand or fall with claim 1.

F. The rejection of claims 25-26 and 29 is separately contested, i.e. claims 25-26 and 29 do not stand or fall with claim 24.

G. The rejection of claim 27 is separately contested, i.e. claim 27 does not stand or fall with claim 26.

H. The rejection of claim 28 is separately contested, i.e. claim 28 does not stand or fall with claim 26.

I. The rejection of claims 31-32 is separately contested, i.e. claims 31-32 do not stand or fall with claim 1.

J. The rejection of claims 33-35 is separately contested, i.e. claims 33-35 do not stand or fall with claim 31.

K. The rejection of claim 36 is separately contested, i.e. claim 26 does not stand or fall with claim 35.

L. The rejection of claim 37 is separately contested, i.e. claim 37 does not stand or fall with claim 33.

M. The rejection of claim 38 is separately contested, i.e. claim 38 does not stand or fall with claim 33.

Patentability Arguments

A. Claims 1-4 and 24

Claims 1-4 and 24 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 1 includes the feature of at least one sensor mounted on one of the tracks for generating a signal representative of the occupant weight force.

Verma discloses a vehicle seat 10 with a seat bottom support 14 attached to brackets 16 positioned on each side of the seat 10. Each bracket 16 has a front riser portion 18, a rear riser portion 20, and an intermediate beam 22 interconnecting the riser portions 18, 20. The brackets 16 are mounted on tracks 26, which are mounted to a vehicle floor via support feet 28 located at the four corners of the tracks 26.

In one embodiment, strain gauges 30 are rigidly attached to the front and rear riser portions 18, 20 (Figure 1) of each bracket 16. In another embodiment, strain gauges are mounted to the four (4) support feet 28 (Figure 3). In a third embodiment, only one strain gauge 20 is mounted to each bracket 16 (Figure 4). None of these embodiments show mounting the strain gauges to the seat tracks.

Further, as discussed in the Background of the Invention section, Verma was seeking to overcome problems related to measuring occupant weight with systems that incorporated load cells between the seat frame and the seat track at the mounting locations between the frame and tracks. Thus, Verma actually teaches away from any type of seat track mounting by using riser and support feet mounting configurations to overcome the aforementioned problems. As Verma does not disclose this feature, Verma does not anticipate claim 1.

B. Claim 5

Claim 5 stands rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 5 includes the feature of the first track including a forward end and a rearward end with a central track portion extending between the ends and with the forward and rearward ends being mounted to the vehicle structure such that the central track portion remains unsupported to form a gap between the vehicle structure and the central track portion wherein the sensor is positioned along the central track portion.

As discussed above in Section A, Verma sought to address problems related to measuring occupant weight with systems that incorporate load cells between the seat frame and the seat track at corner mounting locations between the frame and tracks. Verma solved this problem by moving the sensors from corner positions between the seat frame and seat track, to a mounting location on a seat riser that is fixed to the seat bottom.

Appellant's inventive solution was mount the sensor on one of the tracks at the unsupported central track portion, which is different than the sensor mounting location taught by Verma. While the tracks 26 in Verma do include forward and rearward ends mounted to the vehicle floor with an unsupported central track portion extending between the ends, the strain gauges in Verma are not positioned along this central track portion as set forth in claim 5.

Thus, Verma does not anticipate claim 5.

C. Claims 6-7

Claims 6-7 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 6 includes the feature of the at least one sensor comprising a first sensor positioned forwardly on the central track portion and a second sensor positioned rearwardly on the central track portion with the first and second sensors for measuring deflection of the second track to generate the signal.

As discussed above in Section A, Verma sought to address problems related to measuring occupant weight with systems that incorporate load cells between the seat frame and the seat track at corner mounting locations between the frame and tracks. Verma solved this problem by moving the sensors from these corner positions, to a mounting location on a seat riser that is fixed to the seat bottom.

Appellant's inventive solution was mount a first sensor on one of the tracks forwardly on the unsupported central track portion and a second sensor rearwardly on the unsupported central track portion, which is different than the sensor mounting configuration disclosed by Verma. While the tracks 26 in Verma do include forward and rearward ends mounted to the vehicle floor with an unsupported central track portion extending between the ends, the strain gauges in Verma are not positioned on the central track portion in two different locations as set forth in claim 6.

Further, the embodiment referenced by the examiner, Figure 1, teaches the use of sensors mounted directly to the risers 18, 20, which are positioned below the seat bottom and above the seat tracks 26. Thus, the sensors are measuring the deflection of the riser itself. The sensors are mounted to the risers such that "they respond to the full occupant seated weight whether transmitted only through the cushion 12 or partially through the seat back 24." See col. 2, lines 29-33. As set forth in claim 6, the first and second sensors are positioned on the central track portion to measure deflection of the second track, i.e. movable track. The sensors in Verma do not measure deflection of the second track because the sensors are mounted to a seat component positioned above the seat tracks.

Thus, Verma does not anticipate claims 6-7.

D. Claims 19-20

Claims 19-20 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 19 includes the combination of a first seat track fixed to a vehicle structure, a second seat track

supported for movement relative to the first seat track for adjustment along a longitudinal axis where the first and second seat tracks are deflectable in a vertical direction due to an occupant weight force generated by an occupant sitting on a vehicle seat, and at least one sensor mounted directly to the first seat track to generate a weight signal by measuring deflection of the seat tracks due to seat occupant weight.

As discussed above in Section A, Verma does not disclose, suggest, or teach mounting sensors on the seat track and instead, teaches away from such a configuration. Claim 19 clarifies Appellant's unique mounting configuration by indicating that the sensor is mounted directly to the first seat track. This clearly is not disclosed in Verma.

In the examiner's explanation of the 35 U.S.C. 103(a) rejections of claims 21, 30, and 38 the examiner admits that this is not shown in Verma. Verma "fail[s] to teach the sensor/sensor assembly being attached to the first track." Page 6 of September 6, 2002 final action. Because Verma fails to teach a claimed feature, Verma cannot anticipate claim 19 under 35 U.S.C. 102(e).

In the Advisory Action of November 21, 2002, the examiner argued that the first track, as required by claim 21, is not the same as the first track required by claim 19. Appellant requests further clarification on this issue because the examiner admits that Verma does not anticipate claim 21, which requires the sensor to be mounted to the first track where the second track is supported for movement relative to the first track, but argues that Verma does anticipate claim 19, which requires the sensor to be mounted directly to the first seat track wherein the second seat track is supported for movement relative to the first seat track.

Further, claim 19 includes the feature that the first sensor be mounted directly to the first seat track. According to Merriam Webster's Collegiate Dictionary, Tenth Edition, Merriam-Webster, Incorporated, 1994, the term "directly" means "in immediate physical contact." There is no immediate physical contact between Verma's sensor and the first, non-movable, seat track.

Finally, as discussed above, Verma teaches the use of sensors mounted directly to the risers 18, 20, which are positioned below the seat bottom and above the seat tracks 26. Thus, the sensors are measuring the deflection of the riser itself. The sensors are mounted to the risers such that "they respond to the full occupant seated weight whether transmitted only through the cushion 12 or partially through the seat back 24." See col. 2, lines 29-33. As set forth in claim 19, the sensor generates a weight signal by measuring deflection of the seat tracks due to seat occupant weight. The sensors in Verma do not measure deflection of the tracks because the sensors are mounted to a seat component at a position located above the seat tracks.

Thus, Verma does not anticipates claim 19-20.

E. Claims 21 and 30

Claims 21 and 30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Verma alone. Claim 21 is dependent from claim 1 and includes the feature of the sensor being mounted to the first track. The examiner argues that while Verma does teach mounting a sensor to the second track, Verma fails to teach mounting the sensor to the first track. The examiner further argues that it would be obvious to mount the sensor to the first track because the outcome will be the same regardless of whether the sensor is on the first or second track.

First, for all of the reasons discussed above, Verma does not disclose, suggest, or teach mounting a sensor on any of the tracks. Second, the outcome would not be the same if the sensor were mounted to the first track instead of the second track. As set forth at page 7, lines 3-5 of the subject application, the configuration of mounting the sensors to the first track is preferred to achieve a specific benefit. Appellant uses sensors that are mounted to the stationary track member in an unsupported track portion so that deflection of the track can be measured to determine overall occupant weight. The location of the sensors near the center and in an unsupported stationary track

section is important so that the overall weight can be measured accurately at all seat adjustment positions. Mounting the sensors for movement with the second track, such as in a member fixed for movement with the seat bottom, causes inaccuracies in the measurements. This is problem is discussed in greater detail in the background section of the subject invention. Appellant's invention of mounting the sensors to the stationary track member overcomes these problems. Thus, the outcome of mounting the sensors to the first track or second track would not be equivalent as argued by the examiner.

Further, in order to modify a base reference to achieve the subject invention, there must be some motivation or suggestion to make the modification. As discussed above, Verma does not disclose, suggest, or teach mounting a sensor to the stationary track member and instead teaches mounting a sensor to a riser that moves with the sliding track member and seat bottom. The only teaching of mounting a sensor to the stationary track member is in Appellant's own disclosure, which cannot be used as motivation or suggestion to make a modification.

Finally, one of the problems that Verma was addressing was the mounting of sensors between the seat track and the seat frame at the four corner mounting locations.. See col. 1, lines 19-30. Verma indicates that attachment between the seat frame and the seat track makes the load cell a structural component, which requires reevaluation of the seat design to assure that crash worthiness requirements are met. Verma addresses this problem by mounting the sensors to the riser members 18, 20. Thus, Verma teaches away from associating the sensors with the track as claimed by Appellant. It is improper to modify a base reference in a manner that destroys the benefits of the base reference. As Verma teaches away from associating sensors with the track, modification of Verma to include sensors in the track would ruin the benefit that Verma achieved.

For similar reasons, claim 30 is also allowable over Verma. Thus, the rejection of claims 21 and 30 under 35 U.S.C. 103(a) is improper and Appellant respectfully requests that the rejection be withdrawn.

F. Claims 25-26 and 29

Claims 25-26 and 29 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 25 includes the feature of the inboard and outboard track assemblies having a predetermined cross-sectional area with each track assembly having at least one track portion having a cross-sectional area that is less than the predetermined cross-sectional area where the first and second sensor assemblies are mounted on the track portion.

For the reasons discussed above, Verma does not teach mounting sensors to any type of seat track and instead, teaches away from such a mounting. Further, Verma does not teach having a seat track with a reduced cross-sectional area portion. There is no disclosure or suggestion anywhere in Verma for a seat track having a reduced area portion. As shown in Figures 1, 3 and 4, the seat track has a constant cross-sectional area along its length.

Since Verma does not teach mounting sensors on the seat tracks and does not teach having a seat track with a reduced cross-sectional area, there is no way Verma can teach mounting sensors on the reduced cross-sectional area of the seat tracks, as claimed by Appellant. Thus, Verma does not anticipate claims 25-26 and 29.

G. Claim 27

Claim 27 stands rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 27 includes the feature of the track portion, with the cross-sectional area that is less than the predetermined cross-sectional area, being located in the central portion of the track.

For the reasons discussed above, Verma does not teach mounting sensors on the seat tracks and does not teach having a seat track with a reduced cross-sectional area. Verma also does not teach positioning the reduced cross-sectional area in a central portion of the track assembly.

As shown in the Figures, the seat track assembly has a constant cross-sectional area through out the entire length of the seat track. While Verma does disclose a seat track assembly with an unsupported central portion, this central portion has a constant cross-section throughout.

Thus, Verma does not anticipate claim 27.

H. Claim 28

Claim 28 stands rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 28 includes the feature of wherein the track portions of each of the track assemblies is comprised of a first track portion located forwardly in the central portion and a second track portion located rearwardly in the central portion and wherein the first and second sensor assemblies each include a first sensor mounted on the first track portion and a second sensor mounted on the second track portion.

For the reasons discussed above, Verma does not teach mounting sensors on the seat tracks and does not teach having a seat track with a reduced cross-sectional area. Verma also does not teach having two track portions with reduced cross-sectional areas in a central portion of the track assembly.

As shown in the Figures, the seat track assembly has a constant cross-sectional area through out the entire length of the seat track. While Verma does disclose a seat track assembly with an unsupported central portion, this central portion has a constant cross-section throughout. There is no teaching of having one reduced cross-sectional area in central portion, let alone having two reduced cross-sectional areas in the central portion in which sensors are mounted to the track.

Thus, Verma does not anticipate claim 28.

I. Claims 31-32

Claims 31-32 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 31 is a method claim that includes the steps of mounting a first sensor assembly to the first track assembly and generating a first signal from the first sensor assembly in response to deflection of the first track assembly due to seat occupant weight generated by the occupant sitting on the vehicle seat.

As discussed above in Section A, Verma does not disclose, suggest, or teach mounting sensors to the seat track and instead, teaches away from such a configuration by mounting sensors directly to the risers, which are positioned below the seat bottom and above the seat tracks. Thus, the sensors are measuring the deflection of the riser itself. The sensors are mounted to the risers such that "they respond to the full occupant seated weight whether transmitted only through the cushion 12 or partially through the seat back 24." See col. 2, lines 29-33. As set forth in claim 31, the sensor generates a weight signal by measuring deflection of the first track assembly due to seat occupant weight. The sensors in Verma do not measure deflection of the tracks because the sensors are mounted to a seat component at a position located above the seat tracks.

Thus, Verma does not anticipate claims 31-32.

J. Claims 33-35

Claims 33-35 stand rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 33 includes the steps of the first and second track assemblies being defined by a predetermined cross-sectional area where each track assembly has at least one track segment with a cross-sectional area that is less than the predetermined cross-sectional area, and which further includes the steps of

mounting the first sensor assembly in the track segment of the first track assembly and mounting the second sensor assembly in the track segment of the second track assembly.

For the reasons discussed above in Section I, Verma does not teach the step of mounting a sensor to the first track assembly as defined in claim 31. Further, Verma does not disclose, suggest, or teach the use of a seat track having a reduced cross-sectional area. As shown in Figures, the seat track has a constant, uniform cross-sectional area along the entire length of the seat track.

Since Verma does not teach mounting sensors to the seat track and does not teach having a seat track with a reduced cross-sectional area, there is no way Verma can teach mounting sensors in seat track segments having a reduced cross-sectional area, as claimed by Appellant in claim 33. Thus, Verma does not anticipate claims 33-35.

K. Claim 36

Claim 36 stands rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 36 includes the step of locating the track segment in the center portion.

For the reasons discussed above, Verma does not teach mounting a sensor to the seat track. Also as discussed above, Verma does not teach having a seat track with a reduced cross-sectional area. Verma also does not teach positioning the reduced cross-sectional area in a central portion of the track assembly.

As shown in the Figures, the Verma seat track assembly has a constant cross-sectional area throughout the entire length of the seat track. While Verma does disclose a seat track assembly with an unsupported central portion, this central portion has a constant cross-section throughout.

Thus, Verma does not anticipate claim 36.

L. Claim 37

Claim 37 stands rejected under 35 U.S.C. 102(e) as being anticipated by Verma. Claim 37 includes the feature of the first sensor assembly being comprised of a first sensor mounted rearwardly within the first track assembly and a second sensor mounted forwardly within the first track assembly and wherein the second sensor assembly is comprised of a third sensor mounted rearwardly within the second track assembly and a fourth sensor mounted forwardly within the second track assembly.

For the reasons discussed above, Verma does not teach mounting sensors to the seat track and does not teach having a seat track with a reduced cross-sectional area. Verma also does not teach having two track sensors in each of the inboard and outboard track assemblies mounted within reduced cross-sectional areas in the respective track assembly.

As shown in the Figures, the seat track assembly has a constant cross-sectional area through out the entire length of the seat track. While Verma does disclose a seat track assembly with an unsupported central portion, this central portion has a constant cross-section throughout. There is no teaching of having one reduced cross-sectional area in central portion, let alone having two sensors mounted within two reduced cross-sectional areas of both the inboard and outboard track assemblies.

Thus, Verma does not anticipate claim 37.

M. Claim 38

Claim 38 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Verma alone. Claim 38 includes the steps of mounting the first sensor assembly to the first track of the first track assembly and mounting the second sensor assembly to the third track of the second track assembly.

Verma does not teach the step of mounting the first sensor to the first track and a second sensor to the third track as defined in claim 38. Claim 38 clarifies Appellant's unique mounting

configuration by indicating that the sensor is mounted to the first and third seat tracks, i.e., the non-movable tracks. This clearly is not disclosed in Verma. In the examiner's explanation of the rejection, the examiner admits that Verma does not teach this feature. Verma "fail[s] to teach the sensor/sensor assembly being attached to the first track." Page 6 of September 6, 2002 final action. Instead, as discussed above, Verma teaches the use of sensors mounted directly to the risers 18, 20

Further, as discussed above, Verma does not disclose, suggest, or teach the use of a seat track having a reduced cross-sectional area. As shown in Figures, the seat track has a constant, uniform cross-sectional area along the entire length of the seat track. Since Verma does not teach mounting sensors to the first and third seat tracks and does not teach having a seat track with a reduced cross-sectional area, there is no way Verma can teach mounting sensors in seat track segments having a reduced cross-sectional area, as claimed by Appellant in claim 38. The examiner argues that it would be obvious to mount the sensor to the first track because the outcome will be the same regardless of whether the sensor is on the first or second track.

The outcome would not be the same if the sensor were mounted to the first track instead of the second track. As set forth at page 7, lines 3-5 of the subject application, the configuration of mounting the sensors to the first track is preferred to achieve a specific benefit. Appellant uses sensors that are mounted to the stationary track member in an unsupported track portion so that deflection of the track can be measured to determine overall occupant weight. The location of the sensors near the center and in an unsupported stationary track section is important so that the overall weight can be measured accurately at all seat adjustment positions. Mounting the sensors for movement with the second track, such as in the seat bottom, causes inaccuracies in the measurements. This is problem is discussed in greater detail in the background section of the subject invention. Appellant's invention of mounting the sensors to the stationary track member overcomes

these problems. Thus, the outcome of mounting the sensors to the first track or second track would not be equivalent as argued by the examiner.

Further, in order to modify a base reference to achieve the subject invention, there must be some motivation or suggestion to make the modification. As discussed above, Verma does not disclose, suggest, or teach mounting a sensor to the stationary track member and instead teaches mounting a sensor directly to a riser that moves with the sliding track member. The only teaching of mounting a sensor to the stationary track member is in Appellant's own disclosure, which cannot be used as motivation or suggestion to make a modification.

Finally, one of the problems that Verma was addressing was the mounting of sensors between the seat track and the seat frame at the four corner mounting locations. See col. 1, lines 19-30. Verma indicates that attachment between the seat frame and the seat track makes the load cell a structural component, which requires reevaluation of the seat design to assure that crash worthiness requirements are met. Verma addresses this problem by mounting the sensors to the riser members. Thus, Verma teaches away from associating the sensors with the track as claimed by Appellant. It is improper to modify a base reference in a manner that destroys the benefits of the base reference. As Verma teaches away from associating sensors with the track, modification of Verma to include sensors in the track would ruin the benefit that Verma achieved.

Thus, the rejection of claim 38 under 35 U.S.C. 103(a) is improper and Appellant respectfully requests that the rejection be withdrawn.

Closing

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant earnestly requests such an action.

Respectfully submitted,

CARLSON, GASKEY & OLDS

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Dated: February 6, 2003

CERTIFICATE OF MAILING

I hereby certify that the attached Appeal Brief is being deposited in triplicate with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to Box AF, Assistant Commissioner of Patents, Washington, D.C. 20231, on this 6th th day of February, 2003.

Laura Combs

CLAIM APPENDIX

1. A system for measuring weight of an occupant seated on a vehicle seat comprising:

a first track mounted to a vehicle structure;

a second track supported for movement relative to said first track for adjustment along a longitudinal axis and being deflectable in a vertical direction due to an occupant weight force generated by the occupant sitting on the vehicle seat; and

at least one sensor mounted on one of said tracks for generating a signal representative of said occupant weight force.

2. A system according to claim 1 including a central processor for receiving said signal.

3. A system according to claim 2 including an airbag control module in communication with said processor wherein deployment force of an airbag is controlled by said control module based on seat occupant weight.

4. A system according to claim 3 wherein said first track includes a forward end and a rearward end with a central track portion extending between said ends, said forward and rearward ends being mounted to the vehicle structure such that said central track portion remains unsupported to form a gap between the vehicle structure and the central track portion.

5. A system according to claim 4 wherein said at least one sensor is positioned along said central track portion.

6. A system according to claim 5 wherein said at least one sensor is comprised of a first sensor positioned forwardly on said central track portion and a second sensor positioned rearwardly on said central track portion, said first and second sensors for measuring deflection of said second track to generate said signal.

7. A system according to claim 6 including a third track mounted to the vehicle structure, a fourth track supported for movement relative to said third track for adjustment along a longitudinal axis and being deflectable in a vertical direction due to said occupant weight force generated by the occupant sitting on the vehicle seat, and a third sensor mounted on one of said third or fourth tracks working with said first and second sensors to generate said signal, said first and second tracks forming an inboard track assembly and said third and fourth tracks forming an outboard track assembly.

19. A system for measuring seat occupant weight comprising:

a first seat track fixed to a vehicle structure;

a second seat track supported for movement relative to said first seat track for adjustment along a longitudinal axis, said first and second seat tracks being deflectable in a vertical direction due to an occupant weight force generated by an occupant sitting on a vehicle seat; and

at least one sensor mounted directly to said first seat track to generate a weight signal by measuring deflection of said seat tracks due to seat occupant weight.

20. A system according to claim 19 wherein said first seat track includes a forward end and a rearward end with a central portion extending between said ends, said forward and rearward ends being mountable to the vehicle structure such that said central portion remains unsupported to form a gap between the vehicle structure and said central portion.

21. A system according to claim 1 wherein said sensor is mounted to said first track.

24. A system according to claim 1 wherein said first track an said second track form an inboard track assembly and wherein said at least one sensor comprises a first sensor assembly mounted to said inboard track assembly for generating a first signal in response to measuring deflection of said inboard track assembly and a second sensor assembly mounted to an outboard track assembly spaced apart from said inboard track assembly, said second sensor assembly for generating a second signal in response to measuring deflection of said outboard track assembly and

including a central processor for determining seat occupant weight based on said first and second signals.

25. A system according to claim 24 wherein said inboard and outboard track assemblies have a predetermined cross-sectional area with each track assembly having at least one track portion having a cross-sectional area that is less than said predetermined cross-sectional area, said first and second sensor assemblies being mounted on said track portion.

26. A system according to claim 25 wherein said inboard and outboard track assemblies each include a forward end and a rearward end with a central portion extending between said ends, said ends being mounted to the vehicle structure such that said central portions are unsupported forming a gap between the vehicle structure and the track assemblies.

27. A system according to claim 26 wherein said track portion with said cross-sectional area that is less than said predetermined cross-sectional area, is located in said central portion.

28. A system according to claim 26 wherein said at least one track portion of each of said track assemblies is comprised of a first track portion located forwardly in said central portion and a second track portion located rearwardly in said central portion and wherein said first and second sensor assemblies each include a first sensor mounted on said first track portion and a second sensor mounted on said second track portion.

29. A system according to claim 26 including an airbag control module in communication with said processor wherein deployment force of an airbag is controlled by said control module based on seat occupant weight.

30. A system according to claim 24 wherein said outboard track assembly comprises a third track mountable to the vehicle structure and a fourth track mounted for movement relative to said second track and wherein said first sensor assembly is mounted to said first track and said second sensor assembly is mounted to said third track.

31. A method for determining weight of a seat occupant comprising the steps of:

providing a first track mounted to a vehicle structure and a second track supported for movement relative to the first track to form a first track assembly

mounting a first sensor assembly to the first track assembly;

generating a first signal from the first sensor assembly in response to deflection of the first track assembly due to seat occupant weight generated by the occupant sitting on the vehicle seat; and

determining seat occupant weight based on said first signal.

32. A method according to claim 31 further including the steps of providing a second track assembly spaced apart from the first track assembly with the second track assembly including a

third track mounted to the vehicle structure and a fourth track supported for movement relative to the third track;

mounting a second sensor assembly to the second track assembly;

generating a second signal from the second sensor assembly in response to deflection of the second track assembly due to seat occupant weight generated by the occupant sitting on the vehicle seat; and

combining the first and second signals to determine seat occupant weight.

33. A method according to claim 32 wherein the first and second track assemblies are defined by a predetermined cross-sectional area and each track assembly has at least one track segment with a cross-sectional area that is less than the predetermined cross-sectional area and further including the steps of mounting the first sensor assembly in the track segment of the first track assembly and mounting the second sensor assembly in the track segment of the second track assembly.

34. A method according to claim 33 including the step of providing a system controller for controlling deployment of an airbag; generating a seat occupant weight signal based on the combination of the first and second signals; transmitting the seat occupant weight signal to the controller; and controlling a deployment force of the airbag based on the seat occupant weight.

35. A method according to claim 33 including the steps of providing the first and second track assemblies with forward ends and rearward ends interconnected by a center portion and fixing the forward and rearward ends to the vehicle structure such that the center portion of each track assembly remains unsupported.

36. A method according to claim 35 including the step of locating the track segment in the center portion.

37. A method according to claim 33 wherein the first sensor assembly is comprised of a first sensor mounted rearwardly within the first track assembly and a second sensor mounted forwardly within the first track assembly and wherein the second sensor assembly is comprised of a third sensor mounted rearwardly within the second track assembly and a fourth sensor mounted forwardly within the second track assembly.

38. A method according to claim 33 including the steps of mounting the first sensor assembly to the first track of the first track assembly and mounting the second sensor assembly to the third track of the second track assembly.